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NEWCASTLE DISEASE *

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A devastating disease in poultry was described by Kraneveld[9] in 1926, in the Dutch East Indies. In the same year Doyle[5] investigated an outbreak of disease at Newcastle-on-Tyne, showing characteristics then unknown here in any poultry infection. He recovered a virus from the birds and named the condition Newcastle disease. Subsequently by the exchange of material it was shown that the disease in the Dutch East Indies and in England was caused by one and the same virus.

From that time until now the disease has continued to spread from one continent to another, and its distribution is now world wide.

Following the initial outbreak in England in 1926, further centres of infection were found in 1927, but in all these outbreaks the mortality was exceptionally high, in some instances reaching 100 per cent. For a period of six years there was no known occurrence of the disease in Great Britain until August, 1933[4], when the disease was diagnosed in a flock of 6,000 birds on range and 4,000 young chicks in the brooder houses and some growing stock, in Hertfordshire. The disease spread rapidly on this farm and when first visited the majority of the birds were infected ; the whole flock was killed and the carcases were burned. No spread of the infection to any of the several large neighbouring farms took place.

It is a matter of interest to note that the origin of all the earlier outbreaks that had so far occurred in this country could never be found and no satisfactory explanation given of the likely means of introduction of the infection.

This Hertfordshire outbreak was a turning point in the history of the disease in England. I have quoted that 10,000 birds died or were killed on this farm, and no compensation could be paid because the disease was not scheduled. Steps were taken and in 1936 the Ministry of Agriculture introduced the Fowl Pest Order of 1936. Fowl pest covers the two diseases of Newcastle disease and fowl plague, and under this Order there are regulations for the compulsory notification of the suspicion of the presence of the disease, the slaughter of poultry stock on infected premises and payment of compensation.

These are the only two diseases of poultry which are scheduled.

In February, 1947, after a clean bill of health for a period of almost 14 years, the disease was diagnosed near Bath[6] and unfortunately the infection is still present in the country.

Investigating the origin of this and succeeding outbreaks, unsterilised swill, which contained offal and trimmings from poultry carcases imported from the Continent, was implicated and it was shown that infected poultry carcases were being imported from countries on the continent of Europe where the disease was widespread.

An Order of the Ministry of Agriculture was brought into force designed to prevent the contact of poultry with unsterilised offal, the Diseases of Animals (Boiling of Animal Foodstuffs) Order of 1947.

It was known of course that all tissues of the infected bird may carry the virus and especially pieces of leg and wing bones containing bone marrow, the trimmings of skin, head and neck, and all the internal organs. At a later date the carcases were imported minus head, feet and viscera.

		Number of outbreaks	Birds Died (estimated)	Birds Slaughtered
1947		2,222	50,000	164,000
1948		267	2,770	60,667
1949	January	45		1,195
	February	42		29,463
	March	36		5,986

During this period a large percentage of the outbreaks have occurred in birds owned by domestic poultry keepers with a few birds in the back yard or garden. Some dealers were at one period active agents in disseminating disease by the sale of birds in the incubative stage of the disease, which had been in contact with infected birds.

The restrictions enforced by the Ministry of Agriculture preventing the movement of birds have undoubtedly been a great factor in reducing the incidence of the disease.

SUSCEPTIBILITY OF VARIOUS SPECIES

The domesticated fowl, pigeons, guinea fowls, pheasants and turkeys are susceptible to natural infection. Growing stock are very susceptible, older birds may be more resistant to some strains of the virus.

There is only one report from India, by Iyer[7], of natural infection in pigeons, but these birds are readily susceptible to inoculation of the virus, particularly young birds.

The reports regarding the susceptibility of ducks and geese show variable statements. A few state the birds are naturally susceptible but many workers have stressed their inability to infect ducks and geese artificially and have found none naturally infected.

The doubt about the possibility of these birds becoming infected has been materially cleared by the work carried out by Asplin[1], who found that many ducks and geese exposed to infection contract an active but sub-clinical infection. Some ducks and a goose artificially exposed to infection became infective to chickens after an incubation period of three to four days. Infectivity persisted for a further three to four days.

Wild Birds.—There are many reports of small wild birds being found dead during epidemics of Newcastle disease

* Central Veterinary Society: one day Poultry Conference.

in many countries, but without supporting experimental evidence that virus was recovered from the carcases.

Mammals.—The larger domesticated animals appear to be resistant to this infection, also cats, rabbits, guinea-pigs and rats. Burnet[2] succeeded in infecting mice, but failed to passage the virus serially. The virus has been transferred experimentally in Syrian hamsters.

Man.—There are several reports of laboratory workers becoming infected with the virus. The usual route of infection has been by the virus gaining entrance through the conjunctiva.

Incubation Period in Fowls

With most strains of the virus this is usually about five to seven days.

The classical type of Newcastle disease is a highly virulent disease, but within recent years a mild type with a low mortality has been reported from the United States of America and there has been some incidence of this form during the present outbreak in England.

Virulent Form Symptoms

Death may occur without symptoms having been noticed. Usually the birds become dull and show loss of appetite and a rise in temperature; egg production falls off rapidly, the affected fowls drink copiously, there is marked depression, watery yellowish green diarrhoea and cyanosis of comb and wattles. Respiratory symptoms, gurgling, rattling and coughing and a prolonged inspiratory effort with outstretched head and neck, through the open beak are usually prominent. The bird is down on its hocks at this stage and has a sleepy appearance, the eyes being half to fully closed. Mucus from the eyes and nostrils may be observed and an excess of secretion in the mouth, which may hang in beads from the tip of the beak.

The crop is often distended with sour smelling fluid.

Birds which survive some days in this stage may develop nervous symptoms, tremors, twitchings of the head or limbs, paralysis of the limbs or torticollis. Recovery occasionally occurs, but these birds frequently show nervous symptoms of a permanent nature.

Mild Form Symptoms

This form was unknown until it was encountered in the United States of America. It has been present there for many years and was known as avian pneumoencephalitis.

In young chicks this form resembles infectious bronchitis, gasping and coughing being the predominant symptoms. The chicks are usually down on their hocks, show marked stupor, head depressed, eyes closed. Some chicks develop nervous symptoms which persist after the respiratory distress has cleared. Paralysis of legs and development of circling movements may be present.

In adult fowls the onset is usually sudden, depression and almost complete loss of egg production quickly occurs. The entire flock becomes affected, and respiratory symptoms as seen in the chicks may occur. Birds slowly recover, but it requires a period of many weeks before the egg production returns to normal. The mortality is usually very low.

Post-mortem Lesions

Virulent Form.—The carcase may have a dry appearance and some reddening of the musculature. Petechial haemorrhages are frequently seen on the serous lining of the sternum, on the epicardium and the heart muscle.

Examination of the digestive tract should reveal the classical lesions, haemorrhages on the mucous membrane of the proventriculus, often multiple haemorrhages massed together in the areas of the mucous membrane between the openings of the ducts from the glands deeply seated in the wall of the organ. Haemorrhages may also be present on the inner surface of the gizzard below the chitinous lining. From this area to the posterior extremity of the intestinal tract one finds very frequently a catarrhal enteritis, with haemorrhages in the mucosa and bran-like patches with ulcers of various sizes covered with a necrotic material of a brown to green colour, the removal of which reveals a red area.

The remainder of the abdominal organs have usually a normal appearance. The respiratory tract may contain a little mucus but usually the trachea and lungs are quite normal. Occasionally the air sacs may be thickened.

The haemorrhagic features of this disease vary enormously in their incidence and extent in individual birds, and in some, may not be present.

Mild Form.—In the mild type of the disease a yellowish mucoid exudate may be found in the trachea and bronchi and the air sacs may be "cloudy" to opaque. Haemorrhages are seldom seen in natural cases.

Diagnosis

The history, symptoms and lesions may be sufficient to warrant a positive diagnosis; and certainly necessitate notification under the Fowl Pest Order of 1936.

Laboratory diagnosis depends upon the isolation and identification of the virus or demonstration of the specific antibody.

Spread of Disease

It is of interest to note that in many countries the initial outbreak has occurred in or near a port, suggesting the possibility of infection being brought from overseas.

It must be remembered that all tissues and secretions are highly infective.

The spread of the disease within a country may occur by means of transport of living affected birds, swill containing offal of infected dressed carcases, imported or otherwise, traffic by dealers in live birds, markets and general movements of poultry stock. Wild birds and vermin may carry the infection from place to place. Attendants may carry the virus on their boots, clothing, hands, etc., and contaminated poultry equipment, crates, food sacks, egg boxes, etc. Transport of poultry manure may also be responsible for spread.

Recovered birds appear to be non-infective, but apparently healthy "carriers" have been reported from America, after recovery from the mild form of the disease.

Immunisation

Under the Fowl Pest Order of 1936 treatment is not permitted in this country.

Naturally, as one would expect with so dangerous a disease, much work has been carried out in an attempt to develop some immunising agent.

This work has fallen mainly into two groups:—

(1) The virus treated by chemical or physical agents usually in such strengths that the virus is killed.

(2) The virus attenuated by various means but mainly by serial passage in embryonated eggs.

Group one.—These agents have given usually poor results and with the best, produced only a fleeting immunity.

Abroad, where they have been tried in the field, the opinion is given that they are not a practical proposition and their use has been discontinued, so far as I am aware.

Group two.—Burnet and Ferry[3] were the first to propagate the virus of Newcastle disease in embryonated eggs. They carried the virus through 12 passages and found it was still pathogenic. Subsequently, Iyer and Dobson[8] attenuated the virus obtained from the Hertfordshire outbreak, by continued passage in embryonated eggs until it became attenuated and with this virus produced a vaccine.

In India, Ceylon, Palestine and, more recently, in the United States of America, Spain and Portugal, vaccines have been prepared by this technique or some modification of it and have now been used over a period of years with, according to reports, gratifying results.

Inoculation of fowls with these attenuated strains causes a mild disease, from which recovery takes place and the fowls are then solidly immune to virulent strains of the virus.

I would like to close my remarks by drawing your attention to the Fowl Pest (Amendment) Order of 1947, in which the current regulations define the responsibilities of certain persons.

Notice of Disease

1. Article 1 of the Fowl Pest Order of 1936 (hereinafter referred to as the principal Order) is hereby revoked, and the following Article is substituted therefor :—

1. (1) Every person having in his possession or under his charge any poultry, or the carcase of any poultry, which is affected or suspected of being affected with fowl pest shall, with all practicable speed, give notice of the fact to a constable of the police force for the area wherein the poultry or carcase is.

(2) A veterinary surgeon who examines any poultry, or the carcase of any poultry, and suspects that the poultry or carcase is affected with fowl pest shall, with all practicable speed, give notice of the fact to a constable of the police force for the area wherein the poultry or carcase is.

(3) A constable receiving any such notice shall immediately transmit the information by the most expeditious means to the Veterinary Inspector appointed for the time being by the Minister to receive such information within the area wherein the poultry or carcase is.

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Weekly Wisdom

Facts are the air of the scientist; without them you will never be able to soar.—I. P. Pavlov's counsel to young scientists at the end of his long life, quoted by Professor J. Konorski (centenary commemorative lecture at the Polish Cultural Institute, W.1.).

SHEEP HUSBANDRY *

By

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Circumstance has ordained that the prosperity of our profession is linked with that of the dairy herd. The progressive decline in horse practice and the war-time recession in the pig and sheep population, coupled with the high priority afforded to milk production, inevitably has made the milk cow the hub of rural practice. The profession can rightly take pride in the part it played in maintaining the milk ration during the exigencies of war. But there are now definite signs that the emphasis previously placed on milk production is being transferred to the problem of maintaining or increasing our meat ration. Protein shortage is world wide. Our potential imports are restricted by currency problems, to which no ready solution is visible. In consequence we are compelled to reconsider how best to utilise, and if possible increase, the potentials of the limited confines of these islands. Cattle rearing subsidy schemes now in operation will undoubtedly tend to some degree of improvement, being ultimately limited by the quantity of imported feeding stuffs available. In the continued absence of such imports it appears to me that the most practicable method is an increase in the numbers and productivity of our sheep flocks.

Thanks to the recent demands of the plough and the armed services, it is probably true to say that never in our recorded history have sheep played such a minor rôle in the economy of lowland farms as they do to-day. In consequence we are now breeding a generation of lowland farmers and stockmen, many of whom have only superficial knowledge of the problems of sheep husbandry. Despite the continued demands of the plough, I consider there are few farms indeed where a small flock could not be maintained profitably. On upland grazings, however, during the same period, sheep numbers have been fairly well maintained, due in considerable measure to the payment of the present capitation subsidy. In these areas the immediate problem is not so much that of maintaining the numbers of breeding stock as of raising the production coefficient. This varies between 60 per cent. and 95 per cent., the wide fluctuation being due in some measure to the terrain, in part to the method of husbandry, but in the main to the ravages of disease. It is these factors which I wish to discuss this afternoon.

Most authorities are agreed that there has been an insidious but progressive deterioration in the quality, and therefore in the carrying capacity of hill grazings in this country. Every year several million carcases and thousands of tons of wool are produced by and removed from these areas. When one appreciates that approximately 2 per cent. of the total weight of a sheep is calcium (expressed as CaO) and a further 2 per cent. is phosphate (as phosphoric acid) it becomes obvious that there must be a constant drain on soil fertility. Impoverishment of the soil has been going on for generations but in modern times has been accelerated by an increase in the productive demands of grazing flocks. Native stocks have frequently been replaced

* Presented to the Yorkshire Division, N.V.M.A., at York, April 29th, 1949.

by heavier types, whilst selective breeding has aimed at greater size and earlier maturity. Relatively slow maturing wether flocks largely have given way to breeding ewes. The extra demands on the soil's fertility came at a time when it was already undergoing a process of depletion, with the result that there has been an apparent increase in disease incidence along with a steady recession in flock totals and financial returns to the owners. This reduction in flock numbers was halted temporarily by the initiation of Hill Sheep Subsidy payments, but now that the ubiquitous milk churn has penetrated to the farthermost corners of our dales, the relative positions of cattle and sheep in the economy of many marginal farms has been reversed, with a not unnatural lessening of interest in the welfare of the sheep flock.

During the past decade it has become evident that the problem is receiving official cognizance, as shown by the report of the Committee on Hill Sheep Farming and the Memorandum prepared by the Survey Committee of our own Association. Circumstances have prevented the full application of the long-term recommendations therein propounded, though now that national affairs have reached some semblance of normality, we look forward to a positive attempt to resolve the basic problems involved. A certain amount of preparatory work has been done by the Animal Health Branch in carrying out surveys of the disease position in various hill areas. During this past year it fell to my lot to make such a survey of the North Riding uplands and this experience, coupled with the fact that I happen to have been closely associated with sheep all my life, is my only justification for being present in this capacity to-day.

Our present knowledge of the causation and control of sheep diseases, extensive though it may now seem, is really of relatively recent acquisition. I spent my first 22 years on a hill sheep farm and looking back, say 25 years, can well recall the limited resources then at our disposal: agents to control ecto- and endoparasites, a few empirical drugs, and a certain amount of mythology. Specific conditions, especially lamb dysentery, took their toll without let or hindrance, engendering a mood of fatalistic acceptance in flock owners which has not yet been finally dispelled. That was about the time when Dalling, Gaiger, McEwen and others began to resolve the problems of the anaerobes and provide us with the battery of biological products now at our command. Relatively few specific conditions remain to be investigated, but the basic problems of the species provide a fruitful field for workers of various spheres.

In any consideration of the problem of disease control it is essential to bear in mind that the sheep is the least domesticated of our livestock. Apart from shelter provided for home wintered hogs on some of our highest holdings, sheep remain in the open for the whole of their existence, in all weathers, at all seasons. A moiety of hay may be provided in the early spring, but otherwise the hill ewe is entirely dependent on what she can extract from the available herbage. The vagaries of our climate exert a profound influence on her chances of survival, partly direct by the effect of wind, water, ice and snow, partly nutritional by the leeching of minerals from the soil and partly, and it may be most especially, by their effect on her numerous bacterial and parasitic enemies in the superficial layers of the soil. This is well illustrated by a study of the body condition of the breeding ewe throughout the year. In a weight record obtained some 20 years ago in Scotland in a hill flock, where no supplementary feed was given, the following figures were recorded.

Average weight of ewes in lbs.

Feb. 4th	April 8th	July 31st	Sept. 1st	Oct. 3rd	Oct. 31st
71	65	81	83	91	88

In other words, the pregnant ewe due to lamb scaled little over two-thirds of her autumn weight. Assuming the lamb, fluids and afterbirth to weigh from 8 to 10 lbs. then during the critical months of November to April she lost some 35 lbs. body weight. Our local conditions may not be so rigorous, but in hill ewes everywhere there is a definite recession in condition as pregnancy advances. This is in direct contradiction to the normal tenets of good husbandry, where the desideratum is a progressive increase in condition up to delivery. In view of this background it is not surprising that the hill ewe and her offspring are the subject of many disease conditions; the chief surprise is that they manage to survive at all.

Having stressed the influence of diet on the metabolism of the pregnant ewe it is perhaps appropriate to consider first those conditions associated with metabolic dysfunction. At this season we normally receive the greatest demands for our services very frequently in connexion with two, not dissimilar, but quite dissociated conditions—pregnancy toxaemia or so-called twin lamb disease, and lambing sickness, locally known as moss ill. The former is a regular feature of many inland flocks but I find it is uncommon on the North Riding uplands. However, quite severe outbreaks occur in hill flocks after sudden falls of snow, resulting in immobility. This was particularly noticeable during the Spring, 1947, storm, when flocks already feeding on hay were penned into a small area by a change of wind and suffered a sharp temporary death rate. The condition invariably follows a sudden reduction in the nutritional level, especially if combined with reduced mobility. Generally speaking, the higher the standard of nutrition, the more likely are symptoms to appear. I have, however, seen apparently typical cases in comparatively poor ewes following removal from rough grazing where the only initiating factor was movement. No routine treatment can be prescribed and death after a period of coma follows in a few days, unless abortion or lambing occurs in the meantime. On rough grazings little can be done to anticipate this disease but where a flock is managed under controlled conditions the aim should be to start the winter at a moderately low level of nutrition and gradually raise the standard throughout gestation. Lambing sickness is of widespread occurrence in our Northern flocks, with a variable incidence, being most frequent following mild winters. Few cases occur on the open moors, the general history being sudden collapse within 24 hours of gathering into intakes for lambing, especially when this involves a distinct change of herbage. Occasional cases follow return of ewes to the moor grazings some 10 days after lambing. Here we are dealing with a true hypocalcaemia or hypomagnesaemia in which the onset, symptoms, course and treatment are identical to milk fever in cows. Confusion of diagnosis with the previous condition may occur in some instances, though here there is an absence of the persistent and irritating grinding of the teeth, which is typical of pregnancy toxaemia. Treatment with calcium borogluconate results in a high percentage of recoveries. Calcium alone gives excellent results in the Dales area, where every farmer is conversant with its properties, but on the East Moors I found it necessary to combine it with magnesium

and glucose. Even then relapses were frequent and several injections were necessary to ensure recovery.

Though I have stressed the importance of mineral loss in the deterioration of our hill grazings in general I have not as yet any record of disease on the North Riding uplands directly attributable to mineral deficiency. From time to time, in most flocks, lambs are born with a condition known as " jink back " and referred to by some owners as " sway back." The swaying gait of affected lambs closely resembles the early stages of sway back, but it is not progressive, and a large measure of recovery eventually is attained. Sudden severe outbreaks of sway back in permanent breeding flocks on semi-arable farms are difficult to explain, enquiry seldom showing any alteration of management other than some variation of the fields grazed. Pine also is absent from moor flocks, though here again there are records of apparently true cases in inland flocks. Two cases investigated showed development of symptoms in the year following extensive application of lime to the pastures. The importance of copper and cobalt in foetal development and normal growth is well established. How deficiencies arose in the circumstances described is a matter for conjecture, but obviously there must have been some interaction, or "blocking" or "fixation," between the pre-existing minerals and applied fertilisers. In these days of the widespread use of chemical fertilisers it becomes increasingly important to elucidate the interaction of minerals in plant ecology. On rough grazings where application of chemical fertilisers is largely impracticable or uneconomic, it appears probable that sheep, and especially ewes in the later stages of gestation, do have a dangerously low mineral intake. Quite a number of favourable reports have been received from progressive owners on the marked improvement in their flocks following the use of supplements, either in powder or cube form. Universal adoption of this practice would appear to be justified both from the viewpoint of the immediate effect on the flock and the ultimate improvement which could be expected in the quality of the grazings.

We now pass to a consideration of the diseases directly attributable to bacterial action. Of these, easily the most important are the entero-toxaemias, that group of rapidly fatal conditions due to the activities of the genus Clostridium. Although essentially soil organisms, the clostridia also appear to live a parasite existence in the large intestine of normal healthy members of all species of the herbivora. Just how these harmless parasites suddenly turn pathogenic and produce their lethal exotoxins is a matter for conjecture, but we recognise from experience that, except in lamb dysentery, where mere invasion of the gut is sufficient, some derangement of the intestinal balance by extremes of weather or feed is a necessary prelude to disease manifestation. Fortunately the exotoxins are excellent antigens, which faculty we have been able to utilise in the production of the many prophylactic agents now available. Lamb dysentery, by its very nature, is well known to stockmen, who seldom require assistance in diagnosis or prophylaxis. Conversely, they all too frequently fail to appreciate the ravages of pulpy kidney disease. Re-seeding and other forms of herbage improvement have resulted in a marked increase in the incidence of this condition, both in young lambs and older sheep. Present stock prices justify a much greater use of serum in our hill flocks. Mixed L.D./P.K.D. serum used at birth gives excellent results and cuts out the so-called " woolball " cases in 10 to 14 day lambs where the symptoms often last for three to five days before death. It is also surprising how many deaths occur in the autumn in newly-weaned lambs brought down to enclosed, often recently improved pastures. Severe outbreaks involving suckling ewes on inland farms are not uncommon and, I am afraid, often unrecognised. In diagnosis no undue stress should be placed on the appearance of the kidneys, excess pericardial fluid and haemorrhages on the heart musculature being much more consistent and conclusive findings. Braxy, which was particularly prevalent on the comparatively low altitudes of the East Moors, has largely been brought under control by vaccination. Many owners of high flocks maintain that there has been a recent increase in braxy incidence though, in these days of reduced totals, this may only indicate an increased interest in their losses. But I have noted an undue death rate in vaccinated hoggs and in young ewes in the spring months. Although we have no record of blackleg or " struck," these losses are somewhat suggestive and, I think, warrant the experimental use of a combined blackleg-braxy vaccine in place of braxy vaccine alone. Whilst correct therapeutic prophylaxis does produce a large degree of immunity, we must not overlook the part that management can also play—in the controlled grazing of re-seeded pastures, in ensuring gradual change from poor to better herbage, and in checking the thrive of susceptible stock at the critical period, as, *e.g.*, by the docking of good thriving lambs. Our forefathers largely controlled their losses by such means. The hypodermic needle should be regarded as an accessory to rather than a substitute for good management.

Numerous other infections occur from time to time in our hill flocks. Isolated outbreaks of infectious pneumonia ; occasional outbreaks of apparently infectious abortion ; sporadic cases of gangrenous mastitis ; joint ill in lambing paddocks and a form of ophthalmia in ewes which clears spontaneously in two to three weeks, but increases the accident risk during its course. Though individual outbreaks may be severe, aggregate losses are not substantial, and our usefulness is limited to controlling further spread in known cases.

In tick-infested areas, the disease picture is further complicated by a trio of diseases directly attributable to the presence of this pest. Fortunately there are no ticks over the greater part of the Pennine Range but on the bracken-clad slopes of the East Moors what was a comparatively limited incidence some 50 years ago has since extended to some degree over the whole area. Both virus diseases transmitted by the tick have been diagnosed. The extent of louping ill losses has yet to be determined but tick-borne fever takes a very heavy toll of unacclimatised sheep and is a definite limiting factor in the purchase of quality rams which customarily come from non-tick areas. Much more serious in effect is the staphylococcal infection of young lambs, " tick pyaemia," locally known as " crook," which is a major problem on some grazings. On our present knowledge tick eradication is impracticable, so we act on the premise that sheep and tick must live together—if not in harmony, then on sufferance. To this end we must aim at introducing the one to the other by easy stages by controlling tick infestation during the first four to six weeks of life. Ewe flocks should be dipped with D.D.T. as near to lambing as possible. Dusting of lambs at birth and again at three weeks with derris root or D.D.T. powder causes a marked reduction in infestation, and appears to give a sufficient interval of protection to build up an active immunity to further infection. Clinical cases of pyaemia, taken early, respond very well to treatment with sulphathiazole. Louping ill vaccination of older stock and cattle gives a high degree of immunity. But, pending tick

eradication, whatever our success in preventing the appearance of disease symptoms, sheep, in their rôle of host, will continue to suffer a very real loss of condition by the mere abstraction of blood. We must, therefore, continue to utilise every possible measure to reduce tick incidence by frequent dipping at the seasons of maximum tick activity and by rendering their soil habitat unsuitable by burning, bracken eradication and re-seeding of pastures.

Sheep, unfortunately, are the unwitting hosts of several other ectoparasites. Heavy infestations of keds and lice are frequently met with in hill flocks, causing considerable pruritus and consequent damage to fleeces by rubbing. Such cases are rank bad husbandry. Sheep scab is now restricted to a few scattered areas on our highest uplands. With the advent of D.D.T. and gammexane dips having lethal properties for mite eggs, sheep ectoparasites other than ticks ought soon to be but a memory. The remaining external affliction of sheep, the blow fly larva, is a much more serious and enduring problem: serious (1) as probably the greatest single factor in hill sheep death rates, (2) from the loss in condition in recovered cases, (3) from a humanitarian aspect as being the most cruel of diseases and (4) because its control makes undue demands on available manpower at the season it can least be spared. From a control viewpoint we recognise two forms of strike; those following soiling of the breech and other body strikes. The former are an all too frequent sequel to internal parasitism, and as such are largely preventable though much good may also be done by crutching. Experience in recent years has shown that D.D.T. dips give a high degree of protection against body strikes for periods up to four weeks in ordinary seasons. General adoption of such dips for summer dipping seems only a matter of time and there appears to be a good case for prescribing their use in compulsory dippings. In the treatment of affected sheep a variety of substances are in common use, some being definitely inhuman in their effects. Ordinary paraffin and lysol in milk is very effective and gives good protection against further attack.

Some years ago, when our Association was presenting its views to the Hill Sheep Farming Committee, it was estimated that the annual cost of disease to the industry in England and Wales was not less than £1,000,000 sterling, of which sum the largest item, amounting to rather more than one-third of the total, was attributed to parasitic gastro-enteritis. I need not dilate here on the clinical picture of the condition or the various nematodes concerned, other than to observe that clinical symptoms are rarely noted in sheep over one year old, by which time they appear to have acquired a considerable degree of resistance to infestation. Lambs, born clear of worms, become infected at an early age. Whether or not clinical symptoms will ultimately appear is not entirely dependent on the gross intake of nematode larvae, but rather on its relationship to the level of nutrition. At low levels of nutrition, or where there is some mineral deficiency, comparatively small infestations frequently result in the appearance of clinical cases. Conversely, where the diet is adequate, infestations twenty times as great may be successfully tolerated. On rough grazings severe outbreaks are uncommon, due to the wide area grazed reducing the larval intake. But, though pronounced clinical cases may be few, the poverty of many grazings makes even small infestations important, resulting in a degree of malnutrition generally referred to as sub-clinical parasitic gastritis. This becomes evident every autumn as the seasonal decline in the quality of herbage reduces the standard of nutrition. It is then that we must endeavour to redress the balance by the regular use of anthelmintics and access to better quality grazings. To-day the latter are frequently re-seeded pastures, and whilst such pastures provide the desirable nutrition, their capacity to carry heavy concentrations of sheep can result in such a build-up of parasitic larvae as to end in ultimate disaster. Of the various anthelmintics phenothiazine is undoubtedly the most efficient, but somewhat bulky. A word of warning on dosing. Too many owners drench sheep in a sitting posture, with resultant pneumonias, and too many lambs are lost through damage to the soft tissues of the larynx by rough usage of balling guns. The incidence of liver fluke on the Eastern slopes of the Pennines is not comparable with that on the wetter Western areas of the country. To-day few owners fail to dose with carbon tetrachloride at least once annually, and deaths from this condition are now rare.

Despite the not inconsiderable amount of prophylaxis now undertaken against the more spectacular diseases, there is undoubtedly scope for a vast betterment in the health of sheep flocks by improved management and greater use of specific remedies. Sheep farmers must be educated in modern ideas and methods of disease control. As a veterinary matter this should be primarily our duty but all too often farmers rely on the judgment of the local chemist or dip agent, or hawker of patent medicines. I have not infrequently been told by owners that "you vets. are not interested in sheep." This of course is a delusion but nonetheless expresses the sentiments of quite a number of flock owners. We must endeavour to obtain their confidence by every means at our disposal. Without mutual confidence we cannot hope for the full and intelligent application of scientific measures in this involved question of disease control.

Discussion

Mr. A. J. Adams, Bradford, enquired as to the usefulness of the practice of "double scauping."

Mr. Wilson, in reply, said the condition for which "double scauping" was practised was an osteoporosis of the outer plate of the frontal bone which was found in unthrifty sheep—especially the ewe lambs—the males (possibly with naturally heavier bones) were not so likely to be affected. Some 15 years ago the cracking of the skull with the knuckles was routine practice in some areas. This was carried out in March when the sheep were likely to commence to thrive in any case. The condition was nearly always secondary to worm infestation and it was far more important to remove the worms. He knew of one farmer with an enquiring mind who divided his hoggs into three groups; one was double scauped, one wormed and one left alone. After a time the only improvement noticeable was in the wormed group.

Mr. E. W. F. MacLeish, Helmsley: In his area the term "crook" meant joint ill, which was resistant to the sulphonamides, and not tick pyaemia. He pointed out that boric acid was a useful application to a "struck" sheep, preventing the maggots from continuing their life cycle, but farmers preferred more drastic applications of concentrated Jeyes' and lysol, which killed the maggots.

Mr. Wilson, answering, said that joint ill was more common on the lower farms where a lambing paddock was used each year. On moorland farms the condition was rare. Treatment was unreliable and preventative measures, such as the application of astringents to the navel, gave a large measure of protection.

Mr. W. R. McKinna, Huddersfield, traced the decline of sheep keeping in his practice and attributed it to the low value of the sheep, and the decline in the standard of shepherding which took place with the increase in popularity of the milk cow. He asked which minerals should be included in a sheep mineral supplement.

Mr. Wilson said various proprietary preparations were available, most having a salt basis with trace elements added. Under hill conditions the use of salt licks in holders was impracticable, the feeding of mineral cubes was a good method of ensuring adequate dosage but was expensive, and the provision of powder in troughs with lids was satisfactory when the sheep were educated, as hoggs, to take the supplement. It was, of course, possible that the "poor" sheep would be bullied away from the troughs.

Miss Dalby, Menston, enquired about the causation and treatment

of ophthalmia in moorland sheep, receiving the reply that it was a ricketts.al infection which might affect 100 per cent. of the sheep; it lasted 14 days, causing severe corneal opacity and then spontaneous recovery occurred. Medicaments failed to influence the course of the disease which in itself was benign, but the accident rate to the sheep increased due to the blindness.

Mr. Shanks, Leeds, said the value of D.D.T. as a deterrent to the sheep blowfly was still not decided. He informed the meeting of some peculiar sheep conditions encountered during the last few years and hoped the practitioner concerned would speak on them. The incidence of ophthalmia during and after the deep snow of 1947 was high and this was probably due to the close folding which had been necessary. Mineral deficiencies in Yorkshire had been found around Kirby Malzeard where copper and possibly other elements were deficient; certainly the administration of trace element mixture tablets had been followed by a great improvement in the condition of sheep. On Malham Moor treatment with minerals again resulted in a dramatic improvement in lambs about weaning time. Clinically they appeared like cases of parasitic gastro-enteritis but phenothiazine did not help them. Bowes Moor was another area where deficiencies were suspected.

The standard of management which was attained by the shepherd was of great importance for the well-being of the flock. This had been impressed upon him recently by a visit to a flock of Dalesbred sheep, a breed rather like large Swaledales, where, instead of the usual 40 cases of twins, this year 200 pairs had been obtained. The farmer suggested the result could be traced to the mild winter and spring, but it was pointed out to him that the development of twins was established at tupping time. It seemed more reasonable that the shepherd had been responsible by his selection of breeding ewes. On this farm two lambs had been seen with a condition called by the farmer "jinked back." This was a common term applied to swayback, but in these cases one *post-mortem* examination showed the presence of abscesses in the vertebral canal causing pressure on the spinal cord and in the other the only abnormality found was a large milk clot present in the abomasum. Differential diagnosis of these cases in life was impossible on symptoms alone and similar *post-mortem* findings had been expected.

Sheep on the Yorkshire Wolds had their own problems, which had been investigated in an extensive experiment carried out in the war years. It was obvious that pulpy kidney disease and parasitism were responsible for most of the trouble. The standard of management was in general quite poor and the sheep either lost weight or remained stationary during the months November to March, unless supplementary feeding with worm treatment was provided. On most Wold farms turnips were fed alone in winter; very few farmers provided hay and hardly any hay was made in the area. It was observed on *post-mortem* examination that the stomachs of such sheep were full of watery material with solid pieces of turnip present. These solid pieces, it was thought, could not be regurgitated adequately for rumination, and if hay were fed the value of the turnips would be lost. An experiment on these lines was planned but no co-operation had been received from the farmers. The N.A.A.S. were setting up their own farm and maybe assistance in carrying out the experiment would be obtained in the future.

Mr. E. W. F. MacLeish: "Gur (gore) chewing" was a condition which was seen fairly frequently in the heavier types of sheep on enclosed land. It was unknown in moorland sheep. Generally a sheep which had been doing well was noticed to be unthrifty. The muzzle and nostrils became green and wet with what appeared to be ruminal contents and the same material was dribbled on to the fore legs, which also became stained green. This green appearance of the fore legs was an easy means of picking out the odd sheep in the flock which were affected. The malnutrition resulting from failure to graze or ruminate normally caused a considerable loss of condition. Farmers appreciated this and often slaughtered such sheep, though in the course of a few weeks spontaneous recovery was usual. Another condition in heavier sheep was a lameness he had encountered which was not foot-rot and which did not respond to copper sulphate and tar or the use of foot-baths. One or more feet, either in front or behind, became affected with a painful pink swelling of the coronary band, which would burst and discharge in seven to ten days if left alone. Sulphapyridine was a specific for the condition and even cases which had been in existence for a week or two would make a dramatic recovery, though there was the likelihood of a deformed foot remaining after such delayed treatment. This lameness had been so severe in some cases that rams could not serve.

Mr. J. W. Procter recounted cases of "myoclonia congenita" seen among pedigree Leicester lambs on a certain farm. From birth affected lambs perpetually quivered and in spite of the shaking affecting the body and head they could suckle and would live weeks or months. There was a suggestion that heredity was concerned but it had been impossible to confirm this.

Mr. A. G. Rae, Boroughbridge, reported that years ago he had serious outbreaks of "orf" to treat, both the lips of the lambs and the udders of the ewes being affected. Many treatments had been tried, but crystal violet in solution had been most effective as a local treatment. Losses had occurred, however, from gangrenous mastitis and many lambs were unable to suck. Last year the ewes had been put through a dettol foot-bath.

Mr. J. P. Cook, Market Weighton, wished to call the attention of the meeting to a serious disease which was responsible for the annual loss of nearly a dozen sheep on most East Riding farms in his practice. This was pregnancy toxaemia: it was causing such grave losses that the prestige of the profession was affected and the confidence of the flock masters was hardly being retained. For other diseases useful advice and treatment could be offered but with this disease we were at a loss. No common condition of feeding or management could be found. Mr. Wilson, in reply, said he could only offer the usual advice about maintaining both feeding and exercise at as constant a level as was possible. In his area it was the inland ewes which were kept too well which were most likely to suffer. He wondered if the disease would be traced eventually to a ruminal upset.

In answer to Major R. E. Bond, Malton, who asked if the immunity against pulpy kidney disease resulting from the administration of mixed LD/PK serum at birth would protect lambs in autumn, Mr. Wilson said that immunity from serum could be expected to be adequate only for four to six weeks and therefore immunity would have to be reinforced nearer the time when losses were expected.

Mr. H. B. Allan, Harrogate, wished to refer to policy rather than disease. The Ministry had formed a Hill Sheep Farming Committee and provincial committees were foreshadowed. A great deal of education had to be given to hill sheep farmers and in this respect practitioners could help with both formal and informal talks. The Ministry's staff were there for advisory purposes only. One problem requiring attention was bracken eradication, for unless something was done areas infested with ticks would enlarge. For sheep work accurate diagnosis was vital and the local chemist was most unreliable from this standpoint.

Human *L. canicola* Infection at a Bristol Camp

In the issue of *The Times* of Thursday of last week, the Bristol correspondent of that paper reported that the occurrence of *L. canicola* fever was causing concern to the medical authorities there. Two cases, a man and wife, were diagnosed at a squatters' camp at Shirehampton, Bristol, five weeks ago. Blood samples were being taken from the 200 occupants of the camp for examination, and veterinary surgeons were also taking blood samples from all dogs in the camp. The two people first affected at Bristol have recovered.

* * * * *

DEHORNED JERSEYS

Recording the fact that Lord De La Warr recently was host to the South-Eastern Jersey Club when some 150 members inspected his Buckhurst herd, *The Farmer and Stock-breeder* states that probably the most interesting feature is that all heifers are now dehorned and the first of these has just come into the milking herd. Caustic is used although experiments are now being made with collodion. Lord De La Warr said he was convinced of the advantages of the practice, particularly for milk production. Calves, yearlings and in-calf heifers were seen and one comment was that the lack of horns did not appear so strange when the whole group was uniform as when individual animals were seen in company with horned.

* * * * *

Benjamin Ward Richardson Lecture.—The subject of this year's lecture, to be delivered at the Royal Sanitary Institute, 90, Buckingham Palace Road, S.W., on Wednesday, November 9th, at 2.30 p.m., will be "The Australian Meat Export Industry and Long-distance Transport of Chilled Beef." The Lecturer will be Mr. R. H. Heywood, B.V.Sc., Acting London Representative and Executive Officer, Australian Meat Board, and Acting Commonwealth Veterinary Officer to the High Commissioner for Australia. Chairman: Sir Weldon Dalrymple-Champneys, Bt., D.M., F.R.C.P. (chairman of Council).

CLINICAL COMMUNICATION

ANASARCA AS A CAUSE OF DYSTOKIA IN THE BITCH

PAMELA CURWEN, M.R.C.V.S.,

SOUTHSEA

Subject.—Two-year-old golden cocker bitch. First litter.

History.—The bitch had had two normal puppies seven hours before examination, since when there had been no labour pains, but she was still very large and lying on her back as if to relieve pressure in the abdomen.

Examination by palpation showed puppies present which could not be felt *per vaginam*. The vagina and os were very much dilated and quite relaxed. Temperature was normal.

Treatment.—3 c.c. of posterior pituitary extract were given on the presumption that the case was one of uterine inertia. After ten hours, the situation was unchanged and a Caesarean section was decided on.

Operation.—The anaesthetic used was pentothal (3½ gr.) followed by ether. A flank incision was made.

When exposed, the uterus was stretched to capacity and could not be drawn through a six-inch incision in the abdomen; it was therefore packed off and incised for two inches. The incision immediately extended itself for two more inches in the longitudinal plane and when touched lightly, tore another two inches across the muscle fibres. The puppy was removed with only a little more tearing. This huge puppy had been lying in the transverse position, the foetal sacs had only a normal amount of fluid in them and it was not noted whether the umbilical cord was twisted. Two quite normal puppies, which were alive, followed easily and involution commenced at once.

The uterus and abdomen were closed with silk and the skin with nylon. The incision healed by first intention and the bitch made an uneventful recovery.

Remarks.—The anasarcous puppy was twelve inches long and weighed 3¾ lb. The whole body was quite firm with fluid and the skin was slimy. From the time of removal, fluid exuded through the skin and when photographed, a considerable amount had been lost. The X-ray photograph shows a normal skeleton and position of the fluid.

Post-mortem Examination.—This examination, very kindly undertaken by Dr. C. W. Ottaway, revealed no pathological or anatomical abnormalities to which the condition could be attributed. The possibility that it was due to an Rh factor cannot be ruled out, but it was not possible to establish this, as no blood samples were taken at the time of operation.

Acknowledgments.—My thanks are due to Dr. Ottaway, F.R.C.V.S., for his great kindness in doing an elaborate *post-mortem* examination, to Dr. Staley for the radiograph and to Mr. W. A. S. Stevens, M.R.C.V.S., for his help and interest in the preparation of this report.

Durham County Council has agreed to a request by Barnard Castle Rural Council for a by-law to be framed making it an offence for a bull to be allowed to run loose in any field to which the public have right of access.

QUESTIONS AND ANSWERS

The submission of questions for inclusion in this column will be welcomed; they can relate to any aspect of veterinary work. For purposes of record, each question is numbered, and those submitting questions are required to furnish (not for publication) name and address.

Answers to readers' queries represent exclusively the personal opinions of the writers, and criticism of the replies will be appreciated.

All communications should be addressed to the Editor.

Dosage of Penicillin in the Newly-Calved Cow or Heavy Milker

Q. 320.—*One is advised in treating mastitis to insert one* 100,000 *unit tube of penicillin every* 24 *hours. In a newly-calved cow or heavy milker, if the animal be milked twelve hours afterwards does an adequate bacteriostatic concentration of penicillin exist in the udder tissues during the next twelve-hour period before the next dose of penicillin is inserted?*

A.—According to unpublished work carried out at the National Institute for Research in Dairying, the quantity of penicillin remaining in the udder 24 hours after infusion of 100,000 units, when the cow has been milked out once in between, varies from 0 to 40 units per ml., this of course being the average of two groups of cows comprising some 10 to 15 animals. Workers elsewhere * report a wide variation in the concentration of penicillin retained in different quarters *of the same cow.* It is thought that probably absorption is proportional to the area of functional tissue. Thus a cow in full lactation would be expected to absorb more than one ending her lactation, and a normal udder more than one suffering from some degree of fibrosis.

In a group of five cows given 100,000 units, the amount found per ml. 24 hours later (with presumably no milking in between) varied from 0 to 460 units and in one cow from 3·1 in a normal quarter to 350 in an affected (pus) quarter.

The important point is, however, that, despite the extreme variations encountered, the injection of 100,000 units twice at a 24-hour interval, with intermediate milking, does bring about bacteriological sterilisation in so far as *S. agalactiae* is concerned: *i.e.*, bacteriostasis *is* maintained.

. . . . .

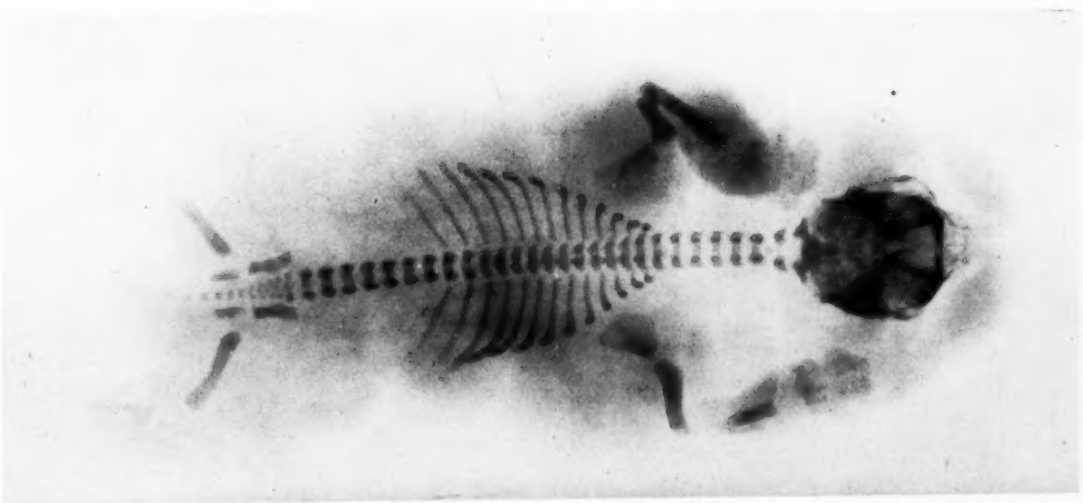
A Case for Diagnosis

Q. 321.—*A fourth calf Jersey cow was found in lateral recumbency,* 36 *hours after calving. There was no history of any former illness apart from an abortion, which terminated the previous pregnancy. The temperature was* 99·5°, *pulse about* 80, *breathing accelerated, and slightly stertorous. There were no nervous symptoms, but the cow seemed to be unable to raise her head. Three ounces of calcium borogluconate were given, intravenously, and three ounces subcutaneously. Within a few hours she seemed brighter, had raised her head, and was lying normally. During the following* 48 *hours she was given a further six ounces calcium borogluconate, three ounces calcium borogluconate with phosphorus, and three ounces magnesium sulphate. Glucose was also administered. Apart from slight response to the calcium injections the cow's condition steadily deteriorated until eventually she was lying on her side, seemingly unable to sit up; the breathing was very fast and difficult, pulse about* 100. *Latterly the temperature was about* 101°. *On* post-mortem *examination the only abnormality found was extensive extravasation of blood into the abomasum and diffuse inflammation throughout the length of the small intestine. There had been no abnormality in diet prior to illness.*

What is the diagnosis of this condition? Can the post-mortem *findings be related to any disease of the hypocalcaemia-hypomagnesaemia group?*

* SLAVIN, G. (1946). *Proc. roy. Soc. Med.* **39.** No. 12.

PAMELA CURWEN : Anasarca as a Cause of Dystokia in the Bitch



A.—The early *ante-mortem* signs certainly appeared typical for post-parturient hypocalcaemia, and the course of the disease is one commonly met with in practice, often referred to as the " non-responding milk-fever." It is probable that there is no single cause of this failure to show a normal response to a standard method of treatment, and various factors have been implicated, such as hypophosphataemia, degeneration of the liver, tuberculosis, senility and so on.

The *post-mortem* lesions, however, are not typical of the metabolic diseases. Death from hypocalcaemia or hypomagnesaemia produces few *post-mortem* lesions of a macroscopic nature. Petechiae of the serous membranes, especially the pericardium, are fairly constant. The picture disclosed in the question suggests that some other condition was confused with hypocalcaemia or became superimposed upon the latter. Had blood samples been taken, and a report of blood calcium and phosphorus levels been obtained, the picture might have been clearer.

Both enterotoxaemia, and poisoning of a metallic or irritant nature suggest themselves as possibilities, but without further information it is impossible to suggest a cause of death with any degree of conviction.

. . . . .

Fly Deterrent for Dressing Wounds

Q. 322.—*Could you suggest a good fly deterrent for dressing wounds in summer? I have tried many with little success.*

A.—Modern fly repellents, like dimethylphthalate and dibutylphthalate, are much more effective than older remedies, but even with them the repellent action is only temporary and the frequent re-applications render impracticable their general use in veterinary medicine. (See Ogilvie, D.D. (1948.) *Vet. Rec.* **60.** 129–134). A useful fly repellent for dressing wounds consists of 25 per cent. dibutylphthalate and 75 per cent. petroleum distillate. This must be re-applied at least every 24 hours if relative freedom from fly worry is to be achieved.

. . . . .

Prognosis in Fracture of the Pelvis in the Dog

Q. 323.—*On what should prognosis be based in fracture of the pelvis of the dog?*

A.—Fracture of the pelvis in the dog is one of the commonest results of road accidents.

It varies in extent from a simple separation of the pubic symphysis to multiple, complicated, or compound fracture of all or any of the pelvic bones. In extreme cases there may be dislocation of the sacro-iliac joint.

Any fracture of the pelvis may be complicated by a varying degree of trauma to the pelvic organs, *i.e.*, bladder, rectum, urethra, vagina.

The simpler forms are more commonly found in young subjects and the more severe forms in the older.

Prognosis therefore must be based on two broad conditions:

1. The position and extent of the fracture.
2. The age and sex of the dog.

A simple pubic separation without displacement and without damage to the pelvic organs will heal without complications. On the other hand, haemorrhage from the urethra or rectum which persists for more than 48 hours or any failure to micturate for more than 12 hours should call for further investigation.

Any pelvic fracture in the bitch which results in deformity of the pelvis must be considered as serious from the point of view of future whelpings.

Every case must be assessed individually, but in the writer's experience most pelvic fractures, even severe multiple ones, heal satisfactorily in three to four weeks with the exception of those with dislocation of the sacro-iliac joint which tend to result in persistent pain and disability.

* * * * *

Correspondence

Disease in Pigs in Ireland

Sir,—I have read with interest Mr. Lynch's letter in the July 2nd issue, relative to the disease in pigs in Ireland.

The disease described by Mr. Lynch very closely resembles the descriptions of Teschen disease or infectious porcine encephalomyelitis. This disease is responsible for serious losses of swine in Germany and Czechoslovakia. A brief description of the disease is given in Hagan's " The Infectious Diseases of Domestic Animals." Simple transmission experiments should confirm or rule out Teschen's disease.

Yours faithfully,

315, Welch Avenue, Ames, Iowa.
August 3rd, 1949

G. R. Carter, D.V.M.

VICTORIA VETERINARY BENEVOLENT FUND

Meeting of Council

A meeting of Council of the Victoria Veterinary Benevolent Fund was held at No. 10 Red Lion Square, London, W.C.1, on Wednesday, June 29th, 1949, when the following members were present: Mr. Arnold Spicer (President) in the chair, Professors R. E. Glover, J. McCunn, Lt.-Col. P. J. Simpson, Professor G. H. Wooldridge and Major W. H. Wortley. Mr. C W. Francis, Accountant, was in attendance.

Minutes.—The minutes of the previous Council meeting, held on April 20th, 1949, having been printed and circulated, were taken as read and signed as correct.

Apologies for Absence.—Communications were received from Professor J. B. Buxton, Mrs. D. I. Glover, Capt. T. M. Mitchell, Professor W. M. Mitchell, Capt. J. W. Procter, Mr. H. W. Steele-Bodger, Captains W. Watt, A. Whicher, Mrs. E. Wooldridge and Dr. W. R. Wooldridge.

Correspondence.—Letters received from the daughter of a late member, R.C.V.S., were read and it was decided to make an allowance of £4 6s. 8d. per month as from July 1st, 1949, to this applicant.

Cases (Old)

(i) The Hon. Secretary read correspondence between himself and the Hon. Secretary of the National Veterinary Benevolent and Mutual Defence Society as a result of which the following cases had been transferred from this Fund by the Executive Committee: Nos. 140, 212 and 267.

The action of the Executive Commiitee was confirmed.

(ii) No. 266. A letter was read from the National Assistance Board, regarding the allowance paid in this case and intimating a reduction in the amount of the N.A.B. allowance. The Council having been placed in possession of certain facts, it was agreed to amend the grant to £9 per annum.

Cases (New)

No. 268, M.R.C.V.S. Correspondence regarding this case was read together with the decision of the Executive Committee to make a grant of £8 13s. 4d. per month.

The action of the Executive Committee was confirmed.

Accountant's Report

The Accountant reported that since the previous meeting the following Subscriptions (by Covenant) and Donations had been received :—

Annual Subscriptions by Deed of Covenant

One new subscription for £2 2s.
Three new subscriptions for £1 1s.
One new subscription for £1 0s.

Donations

Collecting Boxes

	£	s.	d.	£	s.	d.
Central Veterinary Society	8	10	3			
East Midland Division	2	3	6			
Scottish Metropolitan Division ...	3	6	5			
				14	0	2
Lincolnshire and District V.M.A. ...				5	0	0
Royal Counties (in memory of Col. Rees-Mogg)				1	1	0
A. Spicer (commission account *re* purchases on behalf of Mr. Hogarth Scott, Australia) ...				5	0	0
E. A. Tutton (Dadford Women's Institute)				1	1	0
"A.W."				1	1	0
				27	3	2

It was resolved, " That the report be received and that the sincere thanks of the Council be conveyed to the respective Donors."

Nomination to Serve on Council.—The nomination of the Eastern Counties Veterinary Society of Major W. H. Wortley, M.R.C.V.S., *vice* H. P. Standley (deceased) was accepted.

There being no other business, the meeting closed with a vote of thanks to the President and the Executive Committee.

NOTES AND NEWS

Diary of Events

Sept. 14th.—Meeting of the Editorial Committee, N.V.M.A., 3 p.m.; Executive Committee, 1.30 p.m.

Sept. 22nd.—Meeting of the Western Counties Division, N.V.M.A., at Exeter (Royal Clarence Hotel), 2 p.m.

Sept. 22nd.—Special Meeting of the South-Eastern Division, N.V.M.A., at Maidstone (Royal Star Hotel), 6 p.m.

Sept. 23rd.—Meeting of the Biochemical Society at Leeds (Department of Biochemistry, School of Medicine), 11 a.m.

Sept. 27th.—Summer Meeting of the East Midlands Division, N.V.M.A., at Messrs. Boots Hill Farm, Thurgarton, Notts., 12.30 p.m.

Sept. 30th.—Meeting of the South Wales Division, N.V.M.A., at Cardiff. (*See Notice*).

Oct. 7th.—Extraordinary General Meeting of the Royal Counties Division, N.V.M.A., at Reading (Caversham Bridge Hotel), 2.30 p.m.

N.V.M.A. Committee and Council Meetings

The following are the arrangements for meetings of Committees and Council of the Association to be held in London in November:—

Tuesday, November 15th:

11 a.m.—Parliamentary and Public Relations Committee.
2 p.m.—Organising Committee.
4.15 p.m.—Home Appointments Committee.

Wednesday, November 16th:

10 a.m.—Veterinary State Medicine Committee.
2 p.m.—General Purposes and Finance Committee.

Thursday, November 17th:

11 a.m.—**Meeting of Council.**

Friday, November 18th:

10.30 a.m.—**Special Meeting of Council.**

PERSONAL

Appointments.—Mr. Alan A. Wilson, M.V.SC., M.R.C.V.S., lately of the Animal Health Trust and University of Liverpool, has joined the staff of the Veterinary Science Division of Boots Pure Drug Co., Thurgarton, as Biochemist, while Mr. E. J. H. Ford, B.V.SC., M.R.C.V.S., will be joining the staff next month to undertake clinical investigations. Mr. G. J. Christie, B.SC., M.R.C.V.S., is leaving to take an appointment as research officer to the Government of Southern Rhodesia.

* * * * *

Marriage.—HARVEY—ELLIOTT.—On September 3rd, 1949, at St. Stephen's, Treleigh, Denis Harvey, M.R.C.V.S., younger son of Mr. and Mrs. H. J. Harvey, of Abbots Langley, Herts, to Margaret Mary, eldest daughter of Mr. and Mrs. J. J. Elliott, of Redruth, Cornwall.

* * * * * *

Forthcoming Marriage.—HOWARD—BULBECK.—The engagement is announced between John W. Howard, M.R.C.V.S., elder son of Mr. and Mrs. C. W. Howard, of 6, Camberley Road, Norwich, and Celia Bulbeck, M.R.C.V.S., only daughter of the late Mr. G. Bulbeck and Mrs. Bulbeck, of 84, Elms Road, London, S.W.4.

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Visit Exchange (Toulouse).—Docteur Julien, Veterinary Surgeon and Professor at the French National Veterinary College, is desirous of finding an English family with whom his son (aged 20) could spend a few months and at the same time learn the language, between now and August next. He would be glad to take a boy or girl of the family concerned at his home in Toulouse, on an "exchange basis" for the same length of time. Any member of the profession who is interested should write to M. Charles Mahuziès (who is acting on behalf of his friend, Professor Julien, who does not write English), Chateau de Fontguitard, Cambounet-sur-Soir, Tarn, France.

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R.C.V.S. OBITUARY

NICOL, William Hutton, O.B.E., Lt.-Colonel, late R.A.V.C. Graduated Edinburgh March 30th, 1896. Died suddenly at Bournemouth, September 5th, 1949.

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GENERAL OBITUARY

SIR THOMAS MOLONY

We record with regret that the Right Hon. Sir Thomas Molony, P.C., who in 1918 became the last Lord Chief Justice of Ireland, died at his home in London on Saturday last. He was the original Chairman of what became the Loveday Committee on Veterinary Education, resigning on the death of two of his colleagues, when Sir Thomas Loveday, the fourth lay member, became chairman.

Sir Thomas Molony possessed outstandingly fine qualities as a man, an advocate and as a judge. "During the years that followed his appointment as Lord Chief Justice," says *The Times*, "until his retirement in 1924, he maintained the dignity of his high office under conditions of exceptional difficulty, especially when rival Courts, designed to oust the King's Courts, were set up. He never took a prominent part in the hurly-burly of Irish politics, but in the troubled years before and after the establishment of the Free State he displayed great moral and physical courage on more than one occasion and maintained a fine judicial impartiality."

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The British Association Meeting

THE PRESIDENT ON WORLD PROBLEMS OF FOOD AND POPULATION

In his presidential address to the annual meeting of the British Association for the Advancement of Science, Sir John Russell said that during the 111 years since the Association had paid its inaugural visit to Newcastle—the first of five—there had been a great increase in world population and in the rate of increase. The requisite expansion of food production necessitated thereby, depended on extension of the food-producing area, more intensive cultivation of the area already used, and the reduction of the present heavy wastes and losses.

About 11,000 million acres of the world's total land area of 35,700 million had been estimated to be "climatically suited" to crop growth; but the cultivation of much of it was at present impracticable, and the area used was 3,000 million to 4,000 million acres—7 to 10 per cent. only of the world's land surface. Thus the food-producing area represented a world average of about an acre and a half a head, whereas the "climatically suited" area would allow about five acres for every person. Could any of those unused three and a half acres a head be brought into cultivation? Agricul-

turists had long been engaged in widening the zone of cultivation by converting the marginal regions into farm land, and then pushing out into new marginal regions. A new and very promising attack on the marginal lands was now being made with the knowledge that it was the soil and climate, not the climate alone, that determined agricultural use. Large tracts of land previously unfertile were gradually yielding the secret of their barrenness; on the other hand, soil erosion was a world-wide menace to cultivated lands.

Intensification Methods

The most hopeful way of increasing world food supplies, was by more intensive cultivation of the land already in use. The general methods of intensification of food production were the same everywhere. Land tenure and size of holding usually needed modifying to encourage higher efficiency. The holding should be of such size that one man could adequately supervise it. More productive systems must be evolved and bare fallows replaced by tilled crops and by grasses and leguminous plants. Inevitably there came a development of live stock. In the highest and most productive systems live stock yielded far more income than cash crops. Before the war our live stock accounted for 70 per cent. of the value of our farm produce.

Possibilities of P.M.S. Serum

Sir John referred to work at Cambridge University which has shown that injection of a cow with the serum of a pregnant mare will result in the production of several ova during the heat period. Attempts were now being made, said Sir John, to transplant these ova into other cows—one to each cow—fertilise them by A.I. and so get a dozen or so offspring from the chosen mother in place of a solitary calf. "Scrub cows, otherwise of little use, could thus become incubators of the eggs of high-grade cows: the method would be particularly valuable for beef cattle. Already the transplanting has been successfully done with rabbits. No end is in sight: one cow could potentially produce some 75,000 ova during her lifetime. Nevertheless, there is always the lurking suspicion that Nature may resent being unceremoniously bundled out in this way; we can only wait and see."

Chief among the intensification methods was the improvement of the soil by fertilisers, and happily they were able to be produced in almost unlimited quantities. Along with more fertiliser went the need for better seeds and better varieties. Here the British farmer was particularly fortunate. But all improvements failed unless weeds, the arch-enemies of mankind, were adequately controlled. Perhaps the most significant changes in modern farming had been the increasing mechanisation and the alacrity with which the young farmers had accepted it. Tractors were displacing working horses—perhaps too rapidly. Before the war about 60,000 tractors and 650,000 horses were used in Great Britain's agriculture. In 1948 there were over 260,000 tractors, a gain of more than 200,000; in the same period horses were reduced by 192,000. The French foresaw a shortage of oil fuel and were starting experiments on the production of methane by the fermentation of straw..

Pests and Disease

Sir John Russell then referred to the necessary measures against pests and disease and said that there was a steady improvement in methods for protecting plant and animal health. By modern systems the farmer could feed from 15 to 20 persons—against the four or five by the old system, which was still a very common number—provided some of them supplied him with the essential appliances. We were exhorted to produce more food, but at the same time the land on which this could be done and the money necessary to do it were steadily taken away for other purposes. It was hard to find a countryman with a good word to say for planning. From our small and shrinking allocation of land we might yet raise half our food, besides improving the quality of both meat and milk.

Science was continuously opening up new possibilities for use in agriculture and the starting point was often some purely academic problem of no apparent practical interest whatsoever. But the old idea that science would enable the farmer to go anywhere and produce anything had given place to the more realistic principle that every acre of land should, so far as possible, be used in the way to which it was best adapted. In the great agricultural research institutions to-day ideas and equipment were freely borrowed from the pure sciences, but there was inevitably a time-lag between the gaining of new knowledge and its possible use. The present limitations to food production; utilisation of 7 to 10 per cent. only of the earth's surface; conversion by the animal of 10 to 25 per cent. only of its food into human food; and fixation by the plant of no more than 5 per cent. of the radiant energy it received; these were the challenges to agricultural science that its workers were vigorously taking up.

"A Sustaining Faith"

No limits could be set to the possibilities of science, but it did not follow that the present rate of advance would continue. Great scientific discovery was possible only for the gifted few and only in an atmosphere of complete intellectual freedom. "Subordination to political or any other dogma is utterly destructive. Nor can we praise the growing tendency to take good scientists out of the laboratory and put them into committee rooms, or to load them up with so much administrative and other detail that they lack the leisure for 'reaping rich harvest from the mellow soil of quiet thought, mother of great deeds,' to quote the noble words of Aeschylus."

Happily, in spite of modern tendencies, a strong sense of individual responsibility in regard to hungry peoples still survived among food producers. That was the basis on which the Food and Agriculture Organisation did such useful work, but it would be entirely wrong to think of the world as a welfare State where food would be produced simply out of a sense of duty. "If more food is needed, more work must be done to earn it."

"Science," said Sir John Russell in conclusion, "can help us best if we have a sustaining faith, a high purpose in life, and unflinching courage to pursue it."

Chemicals and Animal Health

In his paper to the Chemical Section on Tuesday last, on the subject of "Chemicals and Animal Health," Mr. D. D. Ogilvie, B.Sc.(Edin.), M.R.C.V.S., said that the losses due to diseases of animals were enormous. The lethal effects of disease were spectacular but were often relatively unimportant when compared with economic losses due to debility, stunted growth, inefficient utilisation of foodstuffs and damage to important by-products such as leather, wool, etc.

The utilisation of chemicals to minimise these losses was not new, but as an exact science it was still in its infancy. The work of Ehrlich at the end of the last century showed that chemotherapy might be the answer to many of the problems of the livestock industry, and since then great advances had been made.

Against ectoparasites and helminths and against most of the protozoa, success had been achieved. The sulphonamides, penicillin, and other products had given a good measure of control over many of the pathogenic bacteria. But against the rickettsiae and the viruses only very recently had signs of progress been apparent.

Most of the chemical effort so far had gone towards the curing of disease. An increasing amount in the future must be directed to the maintenance of animal health. Most modern livestock had been far removed from their natural environment and the pressure on the livestock industry to produce ever increasing quantities of food was intense. Evidence of unbalance and disharmony between animals and environment was already apparent in many parts of the world and would need constant attention. The chemical approach to problems of outstanding importance in this connection was capable of far-reaching results.

Farming as Mankind's First Concern

In his presidential address to the Section of Agriculture, Professor N. M. Comber said that during practically the whole of the history of civilised life, farming had been practised as an art and craft, and had been learned by experience; but during the last century scientific knowledge about agricultural processes and materials had developed enormously. With the development of that knowledge educational schemes had come into being to enable those concerned with the agricultural industry to study scientific progress.

There were three groups of factors involved in carrying out a farming policy. There was first the art and craft of farming; second, scientific knowledge of the subject; and, third, the education of those who could make use of the knowledge. The relative emphases on the parts played by the groups had changed very much during the last 100 years, and he had reached the following conclusions on their status at the present time:—

That (i) among the majority of people there had been a grave and almost complete loss of appreciation of the standing and prestige of farming as an art and craft, and that that was a great danger to future social and economic life; (ii) the application of science to the industry of farming, essential as it was in modern conditions, would never make farming an applied science in the way that many other technical industries were—the art and craft of farming would always retain its fundamental place; (iii) the proper balance between the acquiring of new knowledge and the education of those who could use it on the farm had not been preserved—the most urgent need in agricultural education to-day was the education and training of the young people entering the industry.

The fact that farming was fundamental to physical human life had been increasingly neglected by more and more people during

the development of an industrial age in which the vast majority had ceased to have any direct contact with farming. Nothing substantial and successful had been done during the past 20 years to arouse interest in the minds of those people not connected in any direct or obvious way with the industry. "Is it likely that the many assertions in war-time speeches that the nation would never again forget its farming will be fulfilled and be brought above the level of mere platitude? I doubt it very much unless something scarcely yet attempted is done in the matter."

"*Symbolic of Highest Human Values*"

But farming provided more than the physical necessaries: it provided the symbols of the highest values in human life. "We do not invite our friends to dinner because we have taken pity upon their state of malnutrition . . ." The way in which men used the products of the soil in normal and peaceful times belonged primarily to the art of living, which was far greater than the science of living. So it was that the products of farming were on a higher and different kind of level from that of the products of other industries. Why was it, he asked, that farming provided not only the necessaries of physical life but the tokens of the highest spiritual value in human life and relationship? "Whatever may be the amount of divine authority by which men were created to be men, they were commissioned to be farmers by exactly the same amount of authority." The first thing men were commanded to do—or found that they had to do—was to take dominion over the things that lived in the earth and the sea and the air in order that they might be cultivated and become the food of the people; and in doing so men had established amenities that differentiated human life from animal life. It was in that process, far more than in any other experience of mortal life, that human character and the qualities of courage, vision, and patience had been developed.

The products of the farm were the spoils of a continuous and honourable fight against nature, and we partake of them in the manner of those who celebrated a victory. That fundamental fact seemed to have little or no place in the general education of townsfolk; nor did they fully realise that the victory was not always with men.

It would seem to be an urgent need in our scheme of general education to get people back to a knowledge of the fundamental and unalterable glories of human life, and Professor Comber pleaded for an understanding of farming and the farmer's way of life, which took into account that a farmer's duty was everybody's first duty and that those who did not farm must recognise in all humility that they had delegated their responsibilities. In urging a revival of the recognition of the high status of farming, he implied no criticism of modern industrial developments, many of which had become indispensable to farming; but they tended to obscure the fact that they were secondary to farming.

Turning to the relationship of science to farming, the president said that, sometimes, co-operation had been effected with remarkable efficiency and the contribution of science to agriculture had now become quite indispensable. During the war the use of technical knowledge developed very rapidly and this was an important determining factor in the establishment of the National Agricultural Advisory Service, which divorced itself from the teaching institutions and badly upset the balance between experience, science and education. The separation of teaching and advisory work was, in his view, a major tragedy in the history of agricultural education.

Value of Seaweed as Fodder

Professor Lily Newton in her presidential address to the Botany Section, having surveyed evidence that seaweeds were used by coast dwellers from very early times, turned her attention to the course along which future work could best be directed.

Modern transport and machinery were this year making seaweed products available even to inland populations. In spite of the variety of those products the raw materials on which they depended were the macroscopic marine algae themselves.

Recent research had shown the brown seaweeds, particularly the male gametes, to be rich in α and βcarotin, a proportion of which would readily be converted by animals into vitamin A. Vitamin B_1 and B^2 had also been isolated, together with vitamin C, the latter occurring in littoral seaweeds. Vitamin D had been shown to occur, and a compound close to vitamin D had also been isolated from many seaweeds. There might also be some "trace" elements present which would have considerable fodder value. In spite of those favourable discoveries, seaweed had found little use as fodder in this country. It was usually regarded either as a filler or as a means of providing salts and roughage.

Seaweeds appeared to be palatable to domestic animals when once they had become accustomed to them, though horses, sheep and cattle, when offered algal fodder for the first time, needed a few days of habituation before they could digest it, even after they had been induced to eat seaweed.

Scientific and economic considerations must be taken into account in assessing the world's algal resources; and the president emphasised that research in pure as well as in applied science must be pursued with vigour and enthusiasm if the greatest use was to be made of the vast potential resources that were being produced in the waters that surrounded our shores and in the surface layers of the oceans.

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The 30th International Horse Show

The 30th International Horse Show was held at the White City, London, from July 22nd to 29th. There was a record number of entries and the show was favoured by brilliant weather.

Undoubtedly the highlight of the show was the display given daily by Col. Alois Podhajsky, the leader of the Spanish Riding Academy, of Vienna. The Colonel insists that almost the whole pleasure in dressage is the schooling and preparation of the horse. He states that it took eight years to train the horses which he used at the show and that for the first two years of this training they never went out of a trot. Perhaps his best known maxim is "the simpler the bitting, the higher the art." In his display it was possible to observe all movements from the elementary up to the Olympic 'Grand Prix de Dressage' standard; it included all the various paces with Piasse and Passage, the latter being the requirements for the high-school; certainly the remarkably smooth and polished performance was an inspiration to all who saw it, whether or not the intricate movements were fully understood.

Of the horses taking part one was a British thoroughbred, bred in Hungary (aged 15 years) and the others (aged 14 and 16 years) were from the famous Lipazzan breed, their origin dating back to 1580. The Spanish Riding Academy, the only classical school of horsemanship existing in the world to-day, uses no other than the Lipazzan stallions. It was difficult to decide whether the smoother action of the thoroughbred Tega, or the more accentuated action of the Lipazzan stallion Neapolitane Africano was the more spectacular. By common accord, however, the evening performance, under the beams of the arc lamps against an inky-black background, which rendered the lovely Lipazzan stallion a brilliant silver, emphasising each movement, performed with incomparable grace, of a wonderful range, seemed the epitome of the art of noble horsemanship.

Spectacular also was the fully mounted band of the Household Cavalry, resplendent in their yellow State uniforms, which led the 'Welcome' and 'Farewell' parades of foreign competitors and the parades prior to the gala performances.

The teams of heavy horses, Clydesdale, Percheron, Shire and Suffolk, were outstanding. Beautifully matched, their action and turnout was beyond reproach. Perhaps it would be unfair to pick out any team for especial mention but the black Shire geldings were certainly superb; their collective weight is over 4 tons. They have been together since 1947 and although extensively shown have never been beaten. The Clydesdale team, in the opinion of many, was their equal. Indeed it might be suggested with some truth that in the last decade or so the best of both breeds has been incorporated into each to such an extent that an onlooker might be excused for enquiring which team was the Shires and which the Clydesdales!

Although full reports on the show have been published, the particular attention of veterinarians may rightly be drawn to the degree of adaptability illustrated in the history and achievement of one horse—'Liberty Light'—a hack owned by Mrs. Selwyn Butcher. This brown gelding, aged six years, 15·2½ h.h., was in training as a racehorse earlier this year and is therefore still technically a novice. Following schooling by Count Orssich, he won numerous hack championships at leading shows throughout the country. At the I.H.S. 'Liberty Light' won the Novice Hack Class, the Open Hack Class, both ridden astride, the Ladies Hack Challenge Cup, ridden side saddle, the Moscow Challenge Cup for the Champion Hack and the Winston Churchill Cup for the Supreme Champion Riding Horse. A truly remarkable performance for a horse only a few months out of training. In the opinion of many experts this ex-racehorse excels any hack of modern times and the hack judges pronounced it as nearly the perfect hack.

It was pleasing to see members of the veterinary profession and their families competing, though one feels that the number could be increased with advantage both to the profession and to the I.H.S. Chief honours must go to Miss Iris Kellett the only child of Mr. Harry Kellett, M.R.C.V.S., of Dublin. This intrepid and accomplished yet modest teenager who last year at Dublin defeated the pick of several nations on 'Rusty,' won the Princess Elizabeth Challenge Cup which was competed for this time by the lady riders

of the world. Miss Kellett had the honour of being presented to and congratulated by the Queen when Her Majesty was present at the White City. In addition to winning the Princess Elizabeth Cup Miss Kellett missed several other trophies by a narrow margin; indeed with either 'Rusty' or 'Starlet' she was 'in the money' in most of the events in which she competed.

This is the first time that a lady has ever been included abroad in an Irish team and the occasion was marked by a presentation to Iris by the other members of the Irish team—a happy gesture carried through with traditional Irish charm.

Mrs. Banham, wife of Mr. G. F. Banham, M.R.C.V.S., was second with 'Thomastown' in the Open Hunter Class, under 13 stone. This grand gelding has won many prizes and was shown in good company.

Mr. Bobby O'Neil, M.R.C.V.S., riding his bay gelding 'Andsome,' was a prize winner in the Moss Bros. Cup Competition and gave a good account of himself in several other competitions.

Col. C. H. S. Townsend, C.B.E., M.C., M.R.C.V.S., M.F.H., had 'Big Sweep' and 'Clonard' entered in several competitions including the Princess Elizabeth Cup; capably ridden as always by Mrs. Townsend they were just not lucky enough to be in the prize money.

Mr. E. J. Delfosse had 'Cork Black Knight' jumping in the Selby Cup and the Princess Elizabeth Cup Competition. Their rider in both events was Miss Marie Delfosse, M.R.C.V.S., but on each occasion she was out of luck.

The Honorary Veterinary Surgeons to the International Horse Show were Mr. W. L. Dwerryhouse, M.R.C.V.S., D.V.S.M., Mr. P. T. Lindsay, M.R.C.V.S., Mr T. L. Wright, M.R.C.V.S., and Mr. H. W. Steele-Bodger, M.R.C.V.S.

H. W. S.-B.

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THE ANIMAL HEALTH TRUST

Evans Final Year Studentships, 1949-50

The Evans Final Year Studentships are awarded annually by the Animal Health Trust through the generosity of Messrs. Evans Medical Supplies, Ltd., of Liverpool. They are awarded to the best student of the fourth year in each college, taking into account the results of his work during the previous years. The awards are made on the recommendations of the colleges. Those recommended for the awards to be made in the coming year are:—

R.V.C. London: Mr. D. C. Davies, Llwyncrwn, Llanybyther, Carmarthenshire; Royal (Dick) Veterinary College, Edinburgh: Mr. Harold Martin, Bredon, Manor Road, Leicester; The Veterinary School, University of Liverpool: Mr. M. H. Cross, 31, Derwent Road, Lancaster; Glasgow Veterinary College, Glasgow: Mr. Kenneth F. Hosie, 7, Barrland Drive, Giffnock, Glasgow; Veterinary College of Ireland, Dublin: Mr. J. P. O'Connor, "Ardmachree," Charleville, Co. Cork, Ireland.

Award of Research Training Scholarships, 1949

Research Training Scholarships have been awarded to:

Mr. H. Barber, M.R.C.V.S., Hillcrest, South Street, Midhurst, Sussex; Mr. A. O. Betts, M.R.C.V.S., Furze Hill, North Walsham, Norfolk; Mr. R. A. H. W. Malloch, B.SC., M.R.C.V.S., Balmacron, Meigle, Perthshire, Scotland; Mr. A. L. Ogden, M.R.C.V.S., c/o Major Kidd, M.R.C.V.S., The Old Plough, Priest End, Thame, Oxford.

Mr. Barber wishes to specialise in bacteriology with particular reference to immunity to virus diseases. He is arranging to take an honours degree at Cambridge in Natural Sciences.

Mr. Betts wishes to undertake research into the aetiology and pathology of diseases of pigs. He is proposing to undertake a course of research and supervision at Cambridge with a view to obtaining a Ph.D. degree.

Mr. Malloch proposes to undertake research on bovine infertility problems and is intending to enter Cambridge University to undertake Part II of the pathology course.

* Mr. Ogden proposes to undertake a post-graduate degree in agricultural economics at Oxford, with a view to working upon the incidence and ecology of animal diseases.

It will be remembered that Mr. D. Jenkins, M.R.C.V.S., and Mr. A. C. Palmer, M.R.C.V.S., were awarded a Research Training Scholarship last year to take effect in October, 1949. They are both going to Cambridge. Mr. Jenkins is to take a Tripos in Zoology, with the ultimate purpose of undertaking veterinary medicine, and Mr. Palmer is to study for a Tripos in Physiology before specialising in experimental surgery. This brings the total number of Research Training Scholarships awarded by the Trust to 16. Some scholars have, however, been awarded fellowships or posts, as in the case of Mr. Boyden and Mr. Darcel.

* This Scholarship is awarded to take effect from October, 1950.

NEW MILK REGULATIONS

New measures of primary importance to milk producers come into operation on October 1st next. These measures—the Milk and Dairies Regulations, 1949, and the Milk (Special Designation) (Raw Milk) Regulations, 1949—are made under the Food and Drugs (Milk and Dairies) Act of 1944; and they re-enact and bring up to date the provisions of previous measures dealing with raw milk.

Under the new Regulations the registration of dairy farms and dairy farmers and the control of conditions for farm milk production now become the responsibility of the Minister of Agriculture. Local authorities, however, retain their previous responsibilities for distributors of milk (other than producer-retailers in so far as they distribute their milk direct from the farm where it is produced). Local authorities will also, through their medical officers, be responsible for administering precautionary measures for preventing milk becoming infected, whether on the farm or not, with disease communicable to man.

It is an offence under the new Regulations for anyone to carry on the trade of dairy farmer or to use any premises as a dairy farm unless he or the premises is registered. But all those persons trading as dairy farmers and those premises used as dairy farms immediately before October 1st, 1949, will be deemed to have been registered and will be notified to that effect by the Minister. Anyone who does not receive a notification may apply for registration.

The Minister may refuse the registration of a dairy farm or dairy farmer if he is satisfied that the Regulations cannot be complied with, and may cancel a registration if the Regulations are not being complied with. Before the registration of a farmer or farm is refused or cancelled, however, the farmer may lodge an objection, in which event the Minister must refer it to a tribunal of three members—an independent chairman, one person from a panel nominated jointly by the N.F.U. and the Milk Marketing Board, and a representative of consumer interests. The tribunal's report must be considered by the Minister in reaching his decision; in addition a farmer may make representations to the Minister of Agriculture.

The Regulations lay down conditions for the use, construction and maintenance of buildings used for the production, handling, storage and processing of milk. Not all buildings on dairy farms comply fully with these conditions at present and the Regulations permit the Minister to use his discretion to allow their continued use.

The Regulations prescribe methods of production, handling, processing and storage which must be followed. As a general rule milk must be cooled by the producer to a temperature not exceeding 50° F. or to within 5° F. of the water available for cooling.

Responsibility for the enforcement of the Regulations dealing with the protection of milk from infection rests with local authorities through their medical officers. Milk can be diverted for heat treatment if the medical officer suspects that it is infected or has caused infection. Compensation is payable in certain circumstances for milk so stopped or diverted.

The Regulations also provide for the protection of milk against contamination, the cleansing and storage of vessels, utensils or appliances, and the conveyance and distribution of milk. Cleansing of utensils or appliances with an approved chemical agent, as an alternative to scalding with boiling water or steam, is permitted.

The Milk (Special Designation Raw Milk) Regulations, 1949, deal only with the special designations that may be used in the sale of raw milk, "Tuberculin Tested" and "Accredited." The power to grant licences to milk producers, including producer-retailers, for their own milk to use these designations will now rest with the Minister. The use of the designation "Accredited" will not be permitted after October 1st, 1954, subject to the qualification that under the Milk (Special Designations) Act, 1949, its use in a specified area is prohibited unless the milk is all from a single herd.

No licences to use the designation "Tuberculin Tested" will be granted to producers applying after September 30th, 1954, unless the herd is an attested herd. Producers granted licences on applications made between September 30th, 1951, and October 1st, 1954, for milk from a non-attested herd will be allowed a licence for three years only, unless the herd becomes attested. *No licences to use the designation "Tuberculin Tested" for milk from a non-attested herd will be valid after October 1st, 1957.*

The Regulations also make provision for appeals against a decision to refuse, suspend or revoke a producer's or dealer's licence to use special designations; where the licence is held by a retailer for an area specified under the Milk (Special Designations) Act, 1949, the Appeal will be referred to a tribunal.

HUNGARIAN AGRICULTURAL SCIENTIFIC RESEARCH CENTRE

In order to co-ordinate systematically scientific research in agriculture, the Hungarian Government has set up an Agricultural Scientific Research Centre, states the Hungarian News and Information Service. The Centre comes under the control of the National Scientific Council, a body responsible for all branches of scientific research.

The Centre is responsible for the work of 23 agricultural Institutes as follows: Agricultural chemistry (7), Agricultural biology (2), Plant cultivation (3), Horticulture (1), Forestry (1), Plant protection (1), Animal breeding (4), Animal hygiene (2), Mechanisation (1) and Farm management (1).

Also under control of the Centre are 23 experimental stations; twelve of which are concerned with agricultural biology, two with plant cultivation, nine with horticulture and one with breeding.

The main tasks of the various institutions will be as follows:

Agricultural Chemistry.—The study of bio-chemistry, microbiology, and plant biology. Examination of the soil and climatic conditions determining plant growth.

Agricultural Biology.—Adoption of the Michurin and Lysenko methods of agricultural biology, with the aim of improving seed strains.

Plant Cultivation.—Experimenting in methods of improving cultivation, determining the best conditions for new crops, such as cotton; improving fodder crops.

Horticulture.—Studying mechanisation, irrigation and methods of improving species.

Forestry.—In view of the large afforestation programme, study will be directed towards finding the varieties of tree most suitable for the different regions of Hungary.

Plant Protection.—Research will be carried out into different methods of disease prevention.

Animal Breeding.—As the Five-Year Plan demands a big increase in the life-stock population, the task of improving both the number and the quality of stock is important.

Animal Hygiene.—One hundred million forints (£2 million) will be spent during the Five-Year Plan in combating animal diseases.

Mechanisation.—This institute will investigate the types of machinery most suitable for use under Hungarian conditions.

Farm Management.—The study of various farming methods, and the most productive use of man-power, particularly in large-scale farming, will be carried out.

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STRUCTURE OF VITAMIN B_{12}

"The first insight into the chemical structure of the cobalt-containing substances vitamin B_{12}, an anti-pernicious anaemia factor of liver isolated almost simultaneously early last year by Rickes *et al.*, of Merck and Lester Smith and Parker of Glaxo Laboratories Ltd., was revealed last week at the First International Congress of Biochemistry at Cambridge," observes *The Pharmaceutical Journal* in its issue of September 3rd and continues: "Both Dr. K. Folkers on behalf of a team of Merck workers and Dr. V. Petrow on behalf of a team of workers at The British Drug Houses Ltd. and the M.R.C. Spectrographic Unit, London Hospital, announced that they had found that on hydrolysis with hydrochloric acid vitamin B_{12} gave rise to 5:6-dimethylbenziminazoles. The fact that riboflavine and vitamin B_{12} can thus be regarded as derived from a common chemical structure makes it seem likely that riboflavine is somehow involved in the formation of vitamin B_{12} in nature. The portion of the vitamin B_{12} molecule that has now been identified simultaneously in America and this country accounts for some 10 per cent. only of the molecular weight of vitamin B_{12}, which has been shown to be about 1,500. It is too early yet to say whether synthesis of vitamin B_{12} may ultimately become a possibility, but progress in the determination of the structure was certainly noted with interest by several hundred biochemists assembled at Cambridge."

CORRESPONDENCE

The views expressed in letters addressed to the Editor represent the personal opinions of the writer only and their publication does not imply endorsement by the N.V.M.A.

BLOOD TRANSFUSION IN PRACTICE

Sir,—Transfusion of oxalated whole blood has been used with great success in Tasmania, in the treatment of uncomplicated idiopathic post parturient haemoglobinuria in cattle, for a number of years. The fatal complication commonly encountered is pneumonia, usually arising from inconsiderate drenching by the ubiquitous quack. The blood from the donor (one of the herd) is delivered into a bottle containing 3·8 per cent. pot. oxalate solution *via* a large bore needle, but a canula of ¼ in. bore is to be preferred, and if the trocar is reasonably sharp, an incision is unnecessary when the animal is restrained with bull-dogs. Subcutaneous injection of codrenin in the region of insertion of the trocar and canula, is very successful in facilitating control of the donor. There has been no report of any untoward reaction to transfusion that could be attributed to incompatible blood-grouping. The blood is transfused by gravitation, and, like all intravenous injections, should be done slowly. Speed is no criterion of efficiency.

There has been much conjecture as to the quantity of transfused blood that is effective in post-parturient haemoglobinuria. Some veterinarians put the figure as low as 500 c.c. Through a series of four cases, starting with 5 litres in two transfusions at an interval of 24 hours, and decreasing in each case, personal experience has shown that 2½ litres in one injection gives a marked response in 24 hours with ultimate recovery. In regard to the donor, the largest volume of blood removed has been 3½ litres with no apparent ill-effect.

Regarding transfusion and shock, it is well to remember that intensive research on shock has proved it to be a very complicated syndrome, and that the cure is not merely a matter of restoring blood volume and consistency. Transfusion can, and will, maintain life, until such time as the liver and kidneys succeed in detoxicating and removing the products arising from injury. If detoxication is incomplete, shock is irreversible. Should it be necessary, or desired, to perform transfusion, the requisite volume of serum or whole blood could be replaced adequately by 6 per cent. gelatin *c* glucose-saline solutions.

Yours faithfully,

J. Cassells.

174, Ferham Road,
Rotherham,
Yorks.

September 5th, 1949.

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A BITCH'S "LADDER COMPLEX"

Sir,—May I enquire, through the medium of your columns, whether any fellow practitioner has met a psychological case similar to the one described below, and if so, what, in his or her opinion, is the treatment?

Subject.—Boxer bitch, ten months old.

Symptoms.—A peculiar form of nervous derangement, in that the bitch, since it was five months old, has shown a dread of the sight of a ladder, but only when out in the street.

The owner informs me that it makes no difference whether the ladder is propped up against the side of a wall, or house, or on a trolley being pushed along the road.

The actual symptoms shown are a momentary rigidness, followed by a keen desire to bolt, pulling her owner unwillingly down the street. It is noted, however, that the bitch takes no notice of a ladder in the owner's own garden, and, moreover, she has no fear of other objects.

Yours faithfully,

M. Bridgeman.

153, Stafford Road,
Croydon,
Surrey.

August 29th, 1949.